

## CHAPTER 3 – ALTERNATIVES

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### 3.1 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM STUDY

Alternative locations for the proposed SR 303L/I-17 system interchange were evaluated at Carefree Highway and New River Road in addition to the proposed Lone Mountain location. The analysis of alternatives addressed the potential impacts that could result from different freeway alignments that would be required to connect with alternative interchange locations, public and agency input, and roadway design parameters. It was determined that the interchange location at the Lone Mountain section line would provide the best overall solution for connecting the two freeways (URS 2004c and 2003a).

Optional design configurations were considered and analyzed for each proposed interchange to maximize efficiency, cost, traffic movement, etc. The considerations that resulted in the design concept for the proposed project are described in Section 3.2.2. Differences in the design of the interchanges generally would not greatly affect the footprint of the proposed project.

### 3.2 ALTERNATIVES CONSIDERED FOR FURTHER STUDY

#### 3.2.1 No-Build Alternative

Under the No-Build Alternative, the proposed project would not be built; therefore, the interchanges at SR 303L/I-17, 43<sup>rd</sup> Avenue, Lone Mountain Road, Dove Valley Road, and Dixileta Drive would not be built. Existing roadways, such as Lake Pleasant Parkway, New River Road, and SR 74 (Carefree Highway), would continue to be utilized. The City of Phoenix and developers would construct the grid network in the area along arterial roads and section lines in accordance with current plans and in response to projected residential and commercial growth, but no connection would be provided to or across I-17. The roadway for SR 303L would not be extended east of 43<sup>rd</sup> Avenue.

#### 3.2.2 Proposed Project

The proposed project would be built to include the future segment of the SR 303L that would extend east from the 43<sup>rd</sup> Avenue section line to intersect with I-17, then north and south along I-17 to Dove Valley Road and Dixileta Drive, respectively. As part of the proposed project, a system interchange between SR 303L and I-17 and service interchanges along SR 303L at 43<sup>rd</sup> Avenue, and along I-17 at Lone Mountain Road, Dove Valley Road, and Dixileta Drive would be constructed.

The proposed project would encompass approximately 1.5 miles of the proposed SR 303L and approximately 3 miles of I-17. A total of four general-purpose lanes and one high-occupancy-vehicle (HOV) lane are planned for each direction of travel on SR 303L. One-way frontage roads would be provided on each side from 43<sup>rd</sup> Avenue to I-17.

Widening of I-17 is already planned, and ultimately would result in the expansion of the two existing lanes in each direction to five lanes plus an HOV lane in each direction. The widening of I-17 is addressed in an EA prepared by ADOT for FHWA (ADOT 2003). The proposed project would require modification of the previously approved widening of I-17. Additional lanes would be needed for system on-ramps and off-ramps and an auxiliary lane would be needed between service interchange on-ramps and off-ramps. The effect of these additional ramps would extend between north of Carefree Highway and south of Dixileta Drive.

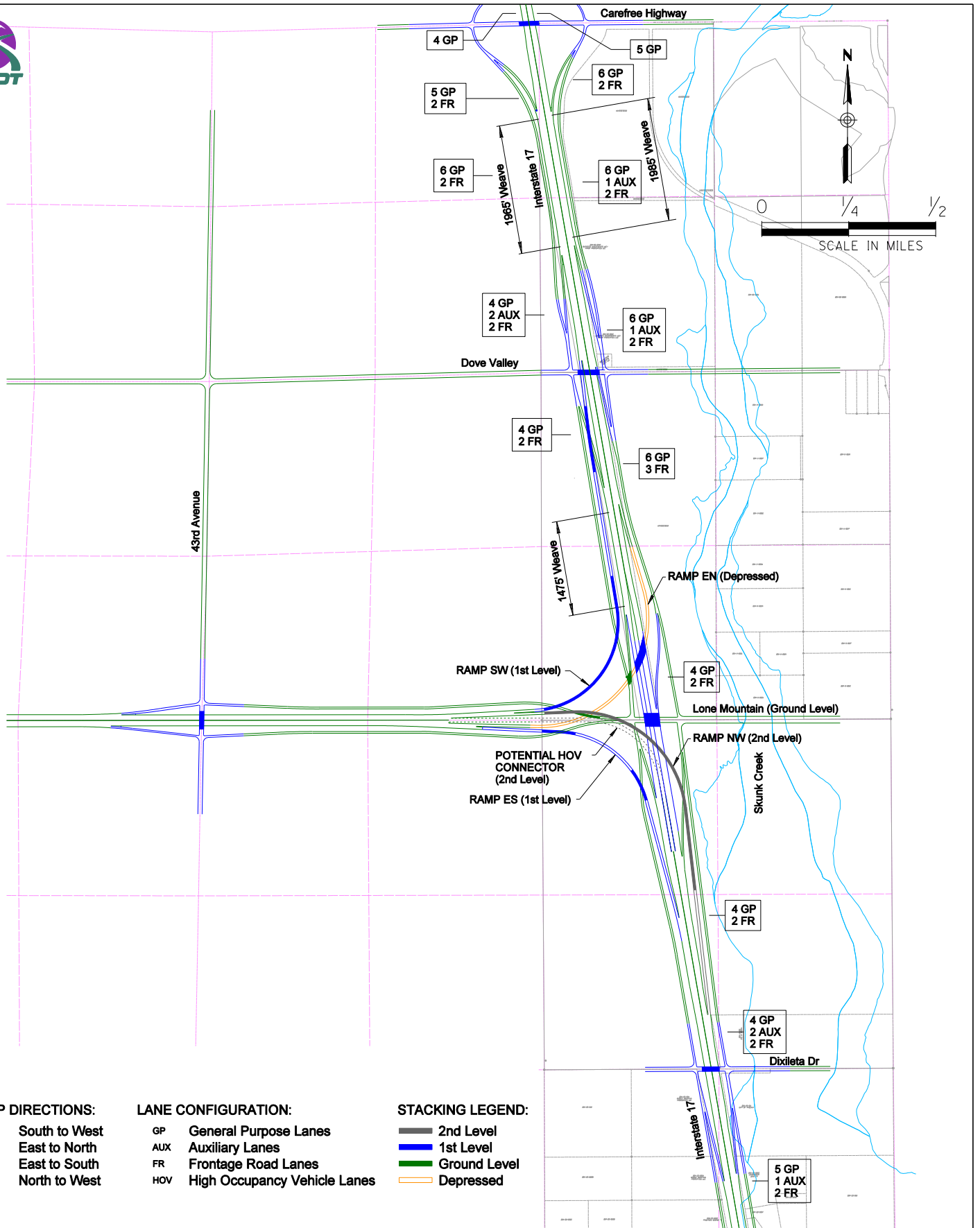
With the proposed project, I-17 would be elevated to pass over the future Lone Mountain Road. The eastbound-to-northbound ramp (Ramp EN) of the SR 303L/I-17 system interchange would pass under I-17 north of Lone Mountain Road and would require I-17 to be on structure. The elevation of I-17 and the structures over Ramp EN and Lone Mountain Road are proposed to be constructed with the initial widening of I-17. The design concepts for the components of the proposed project are described in greater detail below, and are illustrated in Figure 3-1.

### **SR 303L/I-17 System Interchange**

The basic concept for the interchange between SR 303L and I-17 is a directional “T” interchange with ramps connecting I-17 to SR 303L west of I-17. Several design options involving the stacking order of the ramps were identified and evaluated. The preferred configuration would limit the height of the interchange to two levels above ground. Ramp EN (eastbound on SR 303L to northbound on I-17) would be located below ground level and I-17 would be raised to pass over Lone Mountain Road, to be constructed at ground level. The frontage roads would also be constructed at ground level. This configuration would maximize the ability to provide access to abutting property, minimize the visual impact of the interchange, and reduce the cost of the project. Ramp NW would be two levels above ground.

### **I-17/Lone Mountain Road Service Interchange**

A service interchange is proposed on I-17 at Lone Mountain Road to provide access to the planned extension of Lone Mountain Road to the east and the I-17 frontage roads to the west. Eastbound traffic on SR 303L destined for Lone Mountain Road would exit at 43<sup>rd</sup> Avenue, travel along an eastbound frontage road, go through intersections with the north-south frontage



**FIGURE 3-1  
PROPOSED PROJECT**

roads along I-17, and then proceed eastward on the Lone Mountain Road. The reverse movement would be very similar.

### **I-17/Dixileta Drive and I-17/Dove Valley Road Service Interchanges**

The I-17/SR 303L system interchange ramps would continue north and south along I-17 toward the planned Dove Valley Road and Dixileta Drive, respectively. Since the system ramps may affect the planned service interchanges at those roadways, the service interchanges have been included in this proposed project.

Interchanges with I-17 are proposed at Dove Valley Road and Dixileta Drive. These interchanges would connect to each other and to the proposed Lone Mountain Road interchange via the one-way frontage roads along I-17. The proposed interchange at Dixileta Drive would be a half diamond to the south. A full diamond is proposed at Dove Valley Road. The southbound Dove Valley Road ramp would braid with the SR 303L system interchange ramp SW. The position of the northbound on-ramp from Lone Mountain and the northbound off-ramp to Dove Valley would be reversed, thereby converting the northbound “frontage road” to a collector-distributor (C-D) road. Access to abutting property to the east would not be allowed from the C-D road. Access to this property would be provided from Dove Valley Road and/or Lone Mountain Road. Dixileta Drive and Dove Valley Road are planned to be elevated over I-17.

### **SR 303L/43<sup>rd</sup> Avenue Service Interchange**

The 43<sup>rd</sup> Avenue section line is located approximately 1.3 miles west of I-17 as measured along the Lone Mountain Road section line. The general proposed configuration of the interchange is a half diamond to the west of 43<sup>rd</sup> Avenue, no ramps on the east side of 43<sup>rd</sup> Avenue, and frontage roads extending from 43<sup>rd</sup> Avenue to I-17. This configuration avoids potential operational problems associated with weaving movements between ramps on the east side of 43<sup>rd</sup> Avenue and the SR 303L/I-17 system interchange ramps. The proposed project would provide access via frontage roads to properties on both sides of SR 303L between I-17 and 43<sup>rd</sup> Avenue.

The proposed typical section for 43<sup>rd</sup> Avenue at SR 303L includes 12-foot sidewalks on each side of the street in order to accommodate pedestrian traffic from trails planned by the City of Phoenix. Currently, 43<sup>rd</sup> Avenue is planned to be elevated over SR303L. SR303L may be elevated at-grade over 43<sup>rd</sup> Avenue depending upon the relative timing of freeway and street construction.